

**ABSTRACT OF THE DISCLOSURE**

A system is disclosed for estimating the mass flow of recirculated exhaust gas (EGR) from an exhaust manifold to an intake manifold of an internal combustion engine via an EGR conduit disposed therebetween and a fraction of EGR attributable to a mass of charge flow entering the intake manifold. An engine controller is responsive to current values of various combinations of the engine exhaust temperature (ETE), intake manifold pressure (IMP), differential pressure ( $\Delta P$ ) across an EGR valve, and EGR valve position (EGRP) to determine an estimate of EGR mass flow. The controller is further operable to estimate EGR fraction as a function of the estimated EGR mass flow value, mass flow of charge entering the intake manifold, and engine speed.

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